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# Stability of the Gains of the STAR Endcap Calorimeter from 2006 to 2011

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## **Stability of the Gains of the STAR Endcap Calorimeter from 2006 to 2011**

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The Solenoidal Tracker at RHIC (STAR) experiment, based at Brookhaven National Laboratory's Relativistic Heavy Ion Collider (RHIC), uses polarized-proton collisions to investigate sea quark and gluon contributions to the known proton spin. The STAR detector's Endcap Electromagnetic Calorimeter (EEMC) measures the energy of particles produced by those collisions using a lead-scintillator sampling calorimeter, consisting of several layers that include pre-shower, shower maximum, and post-shower detectors. In these detectors, the energy gains which convert a measured pulse into a particle energy measurement, have been calculated using data taken from the years, 2006, 2009 and 2011. Changes in the gains over time may result from known high voltage changes or deterioration of the detector, such as from radiation damage. A comparison of the gains from the three years will be presented.

### *Information about the Author:*

Kayla is double majoring in physics and secondary education, and begins her senior year this fall. She plans to attend graduate school for physics following graduation, and then to take a teaching position in high school physics. For Kayla, this project serves the threefold purpose of furthering her knowledge of nuclear physics, an area of personal interest, preparing her for graduate level work, and providing her with practical experience that will benefit her future students.

*Faculty Sponsor:* Shirvel Stanislaus

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